Watson Supply Chain

The IT Architect's Guide to File Gateway Consolidation

Five key capabilities to look for in a file gateway solution

IBM

The need to modernize legacy file transfer

Sooner or later, most IT architects come to a reckoning with the proliferation of file transfer systems used to exchange critical information with customers, suppliers, partners and the internal workforce. Multiple file transfer products deployed over time for projects, lines of business and departments are costly and complex to maintain amid growing business demands for better service and service-level agreement (SLA) compliance at a lower cost.

Enterprise managed file transfer (MFT) is the solution of choice to modernize legacy file transfer environments for many organizations. The right MFT solution can address the key pain points and weaknesses of outdated file transfer systems with greater visibility, security, collaboration, compliance, efficiency and reliability. At the same time, a solid MFT solution reduces IT's burden in managing and troubleshooting complex legacy file transfer systems.

This white paper outlines five key characteristics that IT architects should look for in an enterprise file gateway solution as a part of a larger MFT strategy:

• DMZ edge security
• Integration across a diverse technology stack
• Enterprise scale and performance
• High availability, failover and disaster recovery
• Operational visibility, monitoring and reporting

By no means exhaustive, this list reflects priority capabilities identified by IT architects and business-to-business (B2B) professionals who rely on the IBM® File Gateway solution as the foundation for MFT-based file transfer modernization. File Gateway consolidates your file exchange into a single solution to simplify operations, reduce cost and support expanding requirements amid rapid growth in file volumes, number of users and endpoints.

Five key capabilities in an enterprise file gateway solution

The multi-protocol, multi-process File Gateway is engineered to address key pain points and futureproof file transfer environments. Based on a scalable architecture, IBM's edge-based MFT solution consolidates disparate centers of file transfer activity and facilitates secure exchange of file-based data over the Internet. File Gateway supplies capabilities needed to monitor, administer, route and transform high volumes of inbound and outbound files.

Built on IBM B2B Integrator, File Gateway helps companies avoid the risk and operational issues that can result from using loosely controlled file transfer servers while improving partner onboarding, strengthening compliance, speeding processes with automation, and supplying visibility across hundreds of processes. A complementary solution, IBM Control Center, provides critical monitoring and configuration management capabilities with a centralized, normalized database for audits, reporting and near-real-time monitoring of file transfers.

Leading companies around the world undertake the managed file transfer journey with File Gateway as a foundation. File Gateway delivers on the five key capabilities that enterprises need across evolving a B2B communications landscape.
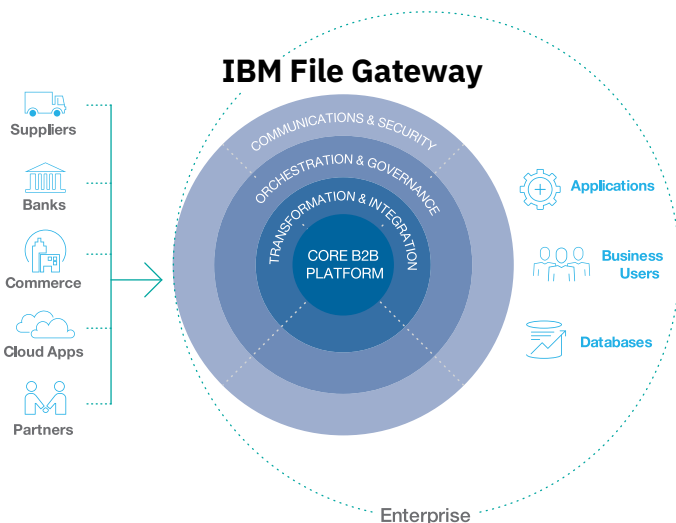

Figure 1 IBM File Gateway enables edge-based data exchange with an intelligent centralized gateway.

DMZ edge security

Security in the DMZ that protects file transfers needs to evolve in the face of ever-growing threats to data privacy. Encrypting the transport layer with HTTPS, FTPS or SFTP is a necessary first step, but no longer adequate for enterprises that make data security a top priority. Advanced security requires a defense-in-depth strategy and robust protection at the edge of the DMZ.

File Gateway, in conjunction with IBM Secure Proxy (IBM's proxy front-end for File Gateway), delivers industry-leading security capabilities, as well as full audit trails, session breaks and protocol inspection, to maximize the protection of sensitive data at multiple layers:

Authentication
Multi-factor authentication validates a connection by IP address, certificate, security token, ID/password and more. LDAP and Active Directory are supported in File Gateway to help ensure user authentication and authorization, while role-based user interfaces help ensure that only authorized individuals can view data.

DMZ perimeter security
File Gateway includes a perimeter server management tool that can be installed in a DMZ to help secure communications between outer layers of a network and the TCP-based transport adapter, while the optional Secure Proxy offers even more robust DMZ traversal, including providing session breaks for secure protocols. No data is stored in the DMZ, with perimeter server or Secure Proxy providing a virtual endpoint for communications.

Defense at rest
File Gateway supplies a secure repository with data at rest encryption, as well as mailboxing that provides a logical separation of data and authorization protocols to govern data access.

Secure protocols

File Gateway supports a full range of secure protocols, including FTPS, HTTPS, AS2, AS4, Connect:Direct, SSH/SFTP, and vertical-specific protocols such as SWIFT and EBICS, as well as encryption standards including PGP, SSL, TLS and S/MIME.

Integration across a diverse technology stack

Managing file transfers across a diverse technology stack can consume IT time and resource with integrations, maintenance and troubleshooting. With the steady incorporation of new technologies, either through deployment choices or mergers and acquisitions, the integration overhead imposed on IT teams is rising and can limit business effectiveness in exchanging files with internal and external stakeholders.

File Gateway integrates across infrastructure and back-office applications with a standardized architecture, pre-built connectors and APIs that enable interoperability with third-party solutions. IBM's agnostic approach avoids vendor lock-in, minimizes time-consuming custom integrations, enables IT to focus on value-added projects and helps futureproof the organization.

Platforms

File Gateway delivers out-of-the-box support for all leading operating systems, including UNIX, Windows and Linux (and zLinux), as well as the IBM iSeries platform.

Back-office services

IT teams benefit with built-in support for leading, databases, LDAP and Active Directory frameworks, and message buses like IBM MQ Series and Java Message Service. File Gateway's service-oriented architecture (SOA) allows services to link together to form complex processes.

Enterprise scale and performance

Many IT organizations have responded to rapid growth in file volumes, sizes, connections and concurrent sessions by adding more personnel, file transfer protocol (FTP) servers and non-scalable point solutions like Ipswitch and Globalscape for various departments. These band-aid approaches may be expedient, but they are also unsustainable as B2B communities continue to grow and highly scalable, timely file exchange becomes a business imperative.

Moreover, the lack of scalability across legacy systems for high volumes of concurrent file transfers can result in delays and error messages when files are not moved in a timely manner, driving up help desk calls. File Gateway scales to the file transfer requirements of the most demanding enterprises.

Endpoint scalability

File Gateway enables your file management environment to scale to thousands of communications endpoints, while providing industry-leading flexibility to define and simplify how files are moved across endpoints. This is achieved in two primary ways. First, a wizard-driven partner onboarding approach creates the necessary configurations behind the scenes for partner information, minimizing set-up activities to bring a new partner online.

The second way is through repeatable processes. Because most file transfers fall into just a few distinct patterns, routing processes can be configured to allow for a wide variety of partner payloads (with flexibility for those that require special handling). Compared to other solutions, onboarding a new partner is no longer a developmental activity that requires scripting or process build-out, but becomes a configuration activity that in many cases can be taken out of the IT group and handled by business users.

Process flexibility

IT teams can expand the capabilities of File Gateway by creating new processes that manipulate files and file metadata as part of the routing mechanism to provide data as the endpoints need to see it. This may include file renaming between the source endpoint and its destination, zipping or unzipping files, or other activities such as data validation, formatting or manipulation.

Process flexibility in File Gateway means that many value-add processing functions can be performed based on your unique requirements. With powerful content basedrouting and logic capabilities in File Gateway, fewer processes can address multiple use cases, which allows for easier ongoing maintenance of process flows.

High availability, failover and disaster recovery

High availability, failover and disaster recovery are essential characteristics of a high-performance managed file transfer platform. With intolerance for delay and disruption increasing among trading partners and customers, organizations can't afford costly downtime that's virtually guaranteed in legacy environments that rely on FTP and email exchanges.

For high availability requirements that span wide geographical areas and to support disaster recovery strategies, the optional IBM Global Mailbox solution provides for replication of incoming payload across data centers regardless of distance. Tight integration with File Gateway gives the overall solution a higher degree of availability and performance.

Clustering

File Gateway can cluster across servers within a data center, removing issues of single point of failure and allowing other servers in the cluster to pick up in the event of a server disruption. Clustering support also provides load balancing for improved performance.

Clustering in File Gateway can be achieved vertically within fewer servers to provide scale for performance and volume, or can be distributed horizontally across more servers to increase scale and availability in the event of an outage in a particular server. When clustered, File Gateway provides internal load balancing to ensure payloads are seamlessly transferred to other nodes in the cluster in the event a node is down, and to evenly distribute the load in high-volume scenarios.

Global Mailbox

This component delivers capability to support two key use cases. The first use case addresses active/active deployments across data centers, allowing data to be processed in multiple locations and improving scalability to address ever-increasing throughput requirements. Within the solution you have the necessary command and control to ensure incoming payload is only processed in one location to avoid duplicate processing.

The second use case addresses active/passive (disaster recovery) capabilities. Global Mailbox provides out-of the-box functionality that allows you to replicate data over toanother data center in near-real time, so that in the event of anoutage you can easily switch over and pick up processing in thebackup data center. This helps to eliminate manual andtime-consuming activities to bring the disaster recoveryenvironment online and significantly reduces data loss.

In both use cases, Global Mailbox provides a consistent view across data centers that allows you to easily see the incoming payloads and determine their status of replication and, in the event of an outage, delivers a clear view of payload not yet processed. Additional capabilities include immediate or deferred replication configuration at the mailbox level to allow you to specify priority or levels of risk at the partner level.

Operational visibility, monitoring and reporting

Effective file transfer management and SLA compliance require high degrees of operational visibility, monitoring and reporting not possible in disparate legacy systems. A 360-degree view in near-real time across the full lifecycle of a file transfer, from its point of origin to fulfillment, is needed to ensure the high reliability expected by trading partners, customers and internal users.

File Gateway delivers a broad range of monitoring from a single centralized point within the baseproduct, while the optional IBM Control Center monitoring and governance solution tracks critical events and alerts stakeholders to issues with transfers or servers. Role-based dashboards can be readily customized to the needs of operations staff, IT governance, risk and compliance professionals, and business users.

myFileGateway
This built-in web application provides internal and external end users access to their mailbox structure as well as reports and events that you decide to make available to them. Additionally, myFileGateway allows users a manual entry point to upload and download their files as part of the process. This can be valuable in situations in which their endpoint may be down for some reason and enables users to perform their necessary functions.

Another use case addressed by myFileGateway is smaller, manual process-oriented trading partners who do not have the technical expertise to send/receive their payload programmatically. This capability allows them to function within your environment while still allowing you to process their payload automatically.

Auditing and policy enforcement
Using File Gateway, reports can be run to validate endpoints, transfers, times, format and more, while the solution may be configured to enforce corporate policies such as encryption of all communications.

Error identification and route replay
Users can search on failed transfers and restart the transfer, either through a full reprocessing from the beginning of route, or simply retransmitting to the endpoint. File Gateway provides a variety of event codes that can be used as trace points in a variety of ways. In addition to these out-of-the-box codes, you also have the ability to set up and configure your own unique codes that can be used in the same manner and in conjunction with the delivered ones.

Control Center integration

IBM Control Center provides a central, customizable application for visibility at the DMZ edge and integrates with File Gateway to validate transfers sent and alert users if transfers failed, or failed to start. Control Center has the ability to not only monitor for errors, but can also be configured to notify you in the event expected processes were not initiated, took too long or a variety of other scenarios based on your requirements.

Making the business case for file gateway consolidation

When it's time to make the business case for file gateway consolidation with enterprise MFT, analyst research at the industry level into key pain points and trends can help strengthen your case. For instance, Aberdeen Group research highlights what IT architects already know — the majority of enterprises continue to rely on email, FTP and scripted custom programs for document exchange both within and outside the firewall1 (Figure 2).

File volumes are increasing between 8 percent and 11 percent per year, Aberdeen's study found, and the size of those files is growing between 6 percent and 7 percent annually. Manual and legacy means of file movement are penalizing companies with high costs, delays in onboarding new partners and significant risk of disruption to key business processes. Organizations are now coming to grips with liabilities of manual techniques as the volume and size of files being moved steadily grows.

Of top concern with legacy file movements are compliancerelated incidents such as audit deficiencies, reliability issues and security-related issues, Aberdeen's study found (Figure 3). Those and other factors, including integration, performance and visibility, are the top drivers for modernizing legacy file systems to be more secure and reliable.

Enterprise MFT has emerged as a strategic solution to what traditionally have been regarded as tactical issues. MFT deployments are growing at a brisk pace as enterprises break away from the limitations and risks of outdated FTP and email exchanges to capitalize on MFT's potential to elevate file transfer performance at multiple operational, business and IT levels.

As Aberdeen stated in a report, "MFT today provides organizations with the secure, reliable and automated means to support collaboration between individuals, and to integrate business processes within (and between) enterprises... As a solution category, enterprise-class managed file transfer is clearly not standing still — on the contrary, leading MFT solutions are vibrant, changing and growing."[2]
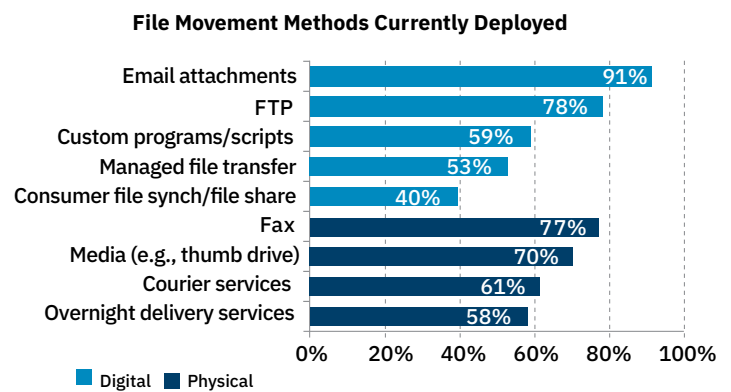

File Movement Methods Currently Deployed

Method	Value
Email attachments	91%
FTP	78%
Custom programs/scripts	59%
Managed file transfer	53%
Consumer file synch/file share	40%
Fax	77%
Media (e.g., thumb drive)	70%
Courier services	61%
Overnight delivery services	58%

■ Digital ■ Physical

Figure 2 Email and FTP are the predominant means of digital file exchange.

**Leading Drivers for Current Enterprise Investments in
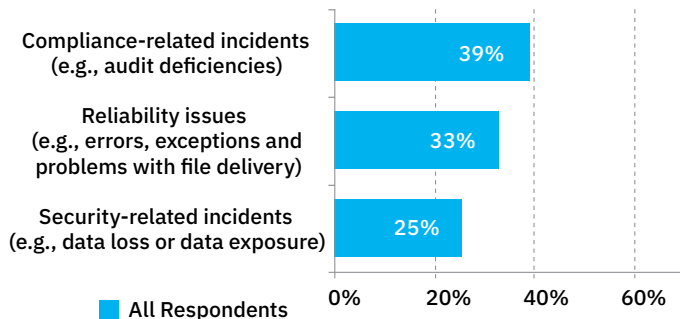File Movement Initiatives**

Figure 3 Compliance, reliability and security concerns are top drivers for file movement investments.

For more information

Learn more about File Gateway.

Learn more about IBM Managed File Transfer suite.

1 Aberdeen Group, *Six Ways to Re-Think Your File Movement Strategies*, October 2014

2 Aberdeen Group, *Flash Forward: Putting Managed File Transfer in Perspective*, February 2015

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